place to place. At one point triassic beds, sloping away at varying angles from the flanks of the mountain, rest directly upon the Archæan beds; at another point, the lower beds of the cretaceous; at still another, and this more rarely, the carboniferous limestones are exposed, resting against the Archæan; while above them, always conformable, are found the triassic, Jurassic, and cretaceous formations, as one follows the section in an ascending geological sense. These facts make it evident that these beds have not been folded into a long anticlinal fold, the crest of which was subsequently planed off by erosion, but that the exposed Archæan parts represent an ancient continent or island along whose shores the younger beds were deposited. The lithological character of the series confirms this view, as they bear internal evidence of being a shore deposit. The Colorado Range is the most extensive of these ancient land-masses. Originally the western boundary of the Park area consisted of two or more masses, forming a general line of elevation parallel to the Colorado Range. Through the south-eastern portion of this area, and parallel with its longer axis, runs the valley of the Upper Arkansas River, which, however, during paleozoic and mesozoic times, did not exist.

The Mosquito Range was not formed until the great dynamic movement in the Rocky Mountain region at the close of the cretaceous. Enormous masses of eruptive rocks are found in this region crossing the sedimentary strata to greater or less elevations, and then spreading out in immense sheets along the planes of division between the different strata. From the fact that these interbedded sheets of eruptive rocks are found practically conformable with their bounding strata, and, like them, folded into sharp folds and cut off by faults, Emmons concludes that the eruptive activity preceded the uplift of the Mosquito Range. The latter was effected by a pushing-together from the east and from the west, a secondary movement acting in a north-and-south direction. The Archæan masses, between which the conformable series was deposited, the resistance of which caused the crumpling of the beds, must have participated in the folding.

A special chapter is devoted to the discussion of the geological phenomena and theoretical questions. The most important of these are the discussion on the folds and faults, and a comparison of the monoclinal folds and the great faults of the Great Basin with those of the Rocky Mountains. Emmons believes that the former are folds similar to those of the eastern mountainous region. He considers them true plications, and believes, that, could the structure beneath the valley be seen, the missing faulted-down members of the fold would be found. His principal objection against the reading of the geological structure of the Great Basin accepted by many scientists, that it is a region of faulted blocks uplifted in different directions, and practically without plication, is, that this theory would involve the actual annihilation of considerable wedge-shaped segments of stratified beds by the simple action of faulting. His theories of the origin of mountain-ranges are in accordance with Suess's theories. He denies the existence of an uplifting force, but considers the faults as caused by contraction and consequent sinking, while the folding is caused by tangential pushing and crumpling of superficial strata of the earth's crust. Another object which he discusses fully is the origin of dolomites and serpentine, the origin of the intrusive masses, and the improbability of sedimentary rocks being absorbed by eruptive masses.

The second part of the volume deals with the mining industry, with the origin of the metal deposits, and the methods of smelting. The atlas contains, besides numerous sections, a reprint of the Hayden map of Central Colorado, and a topographical map of the Mosquito Range drawn so that the light falls from the north-west and at an angle of 45° upon the mountains, by which method the topographical features appear very clear and distinct.

An Inquiry into Socialism. By THOMAS KIRKUP. New York, Longmans. 12°.

THE author of this book declares himself a socialist, but he means by socialism something quite different from what usually passes by that name. He does not favor communism, nor State socialism, nor an equal division of property; and he condemns all anarchical and revolutionary methods. He would extend the powers of government to a certain extent, especially in the municipalities. But he means by socialism chiefly what other folks call co-operation, — the ownership of the means of production by voluntary associations of laborers. He remarks, as many others have done before him, that the main defect in our present industrial organization is the divorce of the laborers from land and capital. But as the individual ownership of land and capital is becoming impossible, the only way out of the difficulty is by the joint ownership of both by associations of laborers. Yet he does not propose, like most of those who call themselves socialists, to take the property away from those who now possess it without giving them compensation: he proposes to pay for it. Moreover, he does not favor doing it by the action of the State, but by the gradual extension of voluntary co-operation. In short, he lays down as the cardinal principle of socialism, that, "whereas industry is at present carried on by private capitalists served by wage-labor, it must in the future be conducted by associated or co-operating workmen jointly owning the means of production" (p. 94).

Now, it is clear that such a system as this is very different from what is commonly called socialism, and we believe that most of those that style themselves socialists would repudiate it. Certainly they show at present no inclination toward voluntary co-operation; for if they really favored it, as Mr. Kirkup does, they would set about organizing co-operative societies. We admit, however, that Mr. Kirkup's socialism is a great improvement on that which is commonly so called; but then it does not differ essentially from what economists have always advocated under the name of 'co-operation.' Most economists of the orthodox school would disagree with Mr. Kirkup in regard to extending the functions of government; but otherwise they would have little to say against the system he advocates as an ideal for the future. He paints the evils of the present system, with its millionnaires and its beggars, in a vivid light, and with too little attention to its better features; yet he admits that skilled laborers, at least, are better off now than formerly. With regard to the prospects of the system he advocates, he does not speak in the most sanguine terms; and he clearly recognizes the difficulties in the way of its establishment. Indeed, he expressly says, that, "without a great moral advance, socialism may be regarded as impracticable" (p. 159), — an opinion in which most advocates of co-operation will be likely to agree. Mr. Kirkup's style is fairly good, and he has made an interesting book; but we very much doubt if it will meet with much approval among the mass of those who call themselves socialists; while at the same time his use of the term 'socialism' to designate the system he advocates is liable to raise a prejudice against it in the minds of others.

NOTES AND NEWS.

M. MOISSAN describes, in the *Annales de Chimie et Physique*, his long-continued experiments for isolating fluorine. While all former attempts to reach this result failed, M. Moissan, after many failures and disappointments, succeeded in his endeavors by electrolyzing anhydrous hydrofluoric acid in which the double fluoride of potassium and hydrogen was dissolved. *Nature*, in describing Moissan's experiments, gives a *résumé* of the remarkable qualities of fluorine as observed by Moissan. Sulphur, brought near the orifice, at once melted and inflamed; selenium behaved in like manner; as did also tellurium, with incandescence, forming fumes, and becoming coated with a solid fluoride. Phosphorus at once took fire, forming tri-, penta-, and oxyfluorides. Powdered arsenic and antimony combined with incandescence, the former yielding drops of AsF_3. A fragment of iodine placed in the gas combined, with production of a pale blue flame; in an atmosphere of iodine vapor, fluorine itself burned with a similar flame. Vapor of bromine lost its color, and the combination was sometimes accompanied by detonation. Cold crystalline silicon at once became incandescent, and burned with great brilliancy, sometimes with scintillations. On closing the little tubes containing it with the thumb, and opening under water, the silicon tetrafluoride formed was absorbed and decomposed, with precipitation of silica. Any undecomposed silicon was found to have been fused. Debray's adamantine boron also burned in the gas, becoming incandescent, and giving off fumes. Fluorine has a most extreme affinity for hydrogen: they combine in the dark, with explosion. In one of the